With the latest Office Action, it is noted that the Examiner has searched class 346 and the art which he has cited in the Office Action of November 29, 1983 discloses ink jet printers. As a consequence, it is submitted that the reasons for requiring restriction of the claims in group 3 are no longer valid and for this reason the applicant is resubmitting the claims of group 3 which had previously been withdrawn.

In the Office Action of November 29, 1983, the Examiner rejected claims 1, 5, 6, 8, 11-14, 16, 20, and 21 under 35 USC 102 (e) as being clearly anticipated by Yamada et al or Tsuzuki et al. Applicant respectfully traverses the Examiner's rejection for the reasons which follow hereinafter, which reasons also are applicable to newly reinstated claims 3, 9, 18 and 23.

Tsuzuki et al show an ink jet printer of the pulse on demand type wherein the charging voltage is varied so as to be proportional to the weight M of the ink droplet being printed. The driving pulse P_D determines the size of the ink droplet and the charging voltage V_C is varied in proportion to the energy of the driving pulse. Tsuzuki et al state that the droplet size is varied in response to the picture signal level L that is received from a picture signal PS.

Yamada et al disclose an ink jet printer wherein the pressure and voltage which are used to produce the ink droplets are controlled so that either large or small dots maybe produced. In this way, Yamada et al are able to produce different size characters by using either small dots, or large dots, or alternating between the two size dots.

Applicant claims apparatus and method for producing characters with smooth edges. Claims 1 and 6 are representative of the applicant's claims. It is noted that claim 1 calls for a electronic printer which is connected to a microprocessor, the microprocessor receiving a data input. A look-up table is connected to the microprocessor and contains information of the character in the form of different dot sizes whereby characters with smooth edges may be produced by the electronic printer. Claim 6 parallels this same language wherein a microprocessor is connected to an electronic printer. Data is input into the microprocessor and a look-up table containing information of the characters to be printed is connected to the microprocessor for the purpose of creating characters with smooth edges. Neither Yamada et al nor Tsuzuki et al discloses such a system and consequently does not anticipate the applicant's invention. Although the Examiner rejected the claims under 35 USC 102 (e) the arguments that follow will not only demonstrate why the applicant's claims are not anticipated thereover, but the arguments will also be directed to why the claims would not be obvious over the references applied by the Examiner.

As stated previously, the applicant's claims call for a microprocessor having a look-up table connected thereto. The look-up table contains information relative to the make up of characters in terms of different dot sizes. Tsuzuki et al do not have a similar type of structure nor do they disclose a method that operates in a manner that would utilize such parameters. Tsuzuki et al receive an incoming signal in terms of a picture element and derive an analog picture signal level L that determines the voltage for

generating the ink droplet. As a consequence, they will have a multitude of different size dots depending upon the picture element that is being represented. Obviously, the mass of the dot will be proportional to its size and, as a consequence, in order to have uniform velocity of all of the dots, the driving pulse P_D must be varied in proportion to the charging voltage V_C. It will be noted that Tsuzuki et al acknowledge that variable dot sizes have been used in the past and they go on to state that one of their objects is to have an ink jet printer of the pulse on demand type capable of contributing to the reproduction of finer letters and patterns. Their contribution for obtaining finer letters and patterns is not variable dot size but rather constant velocity of the drops regardless of their weight. This is their [illegible]tion. There is no teaching in Tsuzuki et al nor suggestion that one maybe able to vary the dot sizes for the purpose of obtaining characters with smoother edges. As stated in the applicant's amendment of September 16, 1983, in order to obtain smoother edges, one must have an intermixing of the various dot sizes. There is nothing in Tsuzuki et al to suggest such intermixing. There is no teaching of geometric relationship of the dots. In the claims of the applicant, each character is treated as an image which is processed. Tsuzuki et al are concerned with picture elements, i.e., an analog signal that determines the size of dot to be printed. Although he has a look-up table, the look-up table is not concerned with characters. His look-up table is concerned with how much voltage V_C is required for each driving force P_D. Basically, what Tsuzuki et al do is to obtain uniform distribution of dots; therefore, their print quality is better than their prior art, but not because of the different dot sizes but because of velocity uniformity.

With regard to Yamada et al, they are concerned with the relationship between the size of character that can be printed and dot sizes. They teach printing thin and thick characters, but they are not concerned with obtaining characters having smooth edges. Furthermore, there is no random selection of their dots. They are only able to produce large dots individually, small dots individually, or are able to alternate large and small dots. They have no ability in their continuous droplet type ink jet printer for obtaining characters with smooth edges because they are unable to intermix the large and small dots. Furthermore, each of their strokes is a line of constant width. The Examiner is directed to Figs. 8, 11 and 13 of Yamada et al where it will be seen that each of their strokes represents a line for a character. There is no varying of the dot sizes within a line for the purpose of obtaining smooth edges. Furthermore, they are limited because once they elect to print a large dot, they cannot print a small dot unless they alternate or skip a pitch. They cannot substitute a large dot for a small dot or visa-versa in a single line for a character. The Examiner is invited to contrast this with Fig. 5 of the applicant's drawing wherein a representation is made of the applicant's concept for producing a character with smooth edges. It will be noted that along the edges of these characters, the large and small dots are in an intermixed relationship so as to obtain the appearance of a smooth line. Nothing like that is shown or suggested by Yamada et al.

As a consequence, it is submitted that the references applied by the Examiner do not anticipate the applicant's

invention but also the applicant's invention as defined by his remaining claims would not be obvious to one skilled in the art and none of the references teaches nor suggests that one may be able to obtain characters with smooth edges by using different dot sizes.

The references of McCollough et al and Huttle et al have been reviewed and are deemed not to be pertinent.

In view of the above comments, it is submitted that the above-entitled application is in condition for allowance and such allowance is respectfully requested.

Respectfully submitted,

Peter Vrahotes

Peter Vrahotes
Attorney for Applicants
Reg. No. 22,529
Phone: (203) 356-6017

Pitney Bowes Inc.
Walter H. Wheeler, Jr. Drive
Stamford, Connecticut 06926

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on 2/3/84
(Date of Deposit)

Pitney Bowes Inc
Name of applicant, assignee, or Registered Rep.

Peter Vrahotes February 3, 1984
Signature